TECHNICAL REVIEW DOCUMENT
for
MODIFICATION TO OPERATING PERMIT 96OPPB133

Public Service Co – Comanche Station
Pueblo County
Source ID 1010003

Prepared by Jacqueline Joyce
November 2004

I. Purpose:

This document establishes the decisions made regarding the requested modification to the Operating Permit for Public Service Company's Comanche Station. This document provides information describing the type of modification and the changes made to the permit as requested by the source and the changes made due to the Division=s analysis. This document is designed for reference during review of the proposed permit by EPA and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the information provided in the requests for modification submitted to the Division on October 6 and 29, 2004, e-mail correspondence and telephone conversations with the source. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Permit Modification Request/Modification Type

The Operating Permit for the Comanche Station was issued on June 1, 2002. Public Service Company (PSCo) submitted requests to modify the permit on October 6 and 29, 2004. The purpose of the modification is to reflect the true design rate of the Unit 2 boiler in the permitted coal processing and ash processing rates for the Units 2 coal handling system and ash silo. Because there is a requested increase in the processing rate, there is also an associated increase in emissions.

Colorado Regulation No. 3, Part C, Section X.A identifies those modifications that can be processed under the minor permit modification procedures. Specifically, minor permit modifications "are not otherwise required by the Division to be processed as a significant modification" (Colorado Regulation No. 3, Part C, Section X.A.6). The Division requires that "any change that causes a significant increase in emissions" be

processed as a significant modification (Colorado Regulation No. 3, Part C, Section I.B.36.h.(i)). According to Appendix D of Regulation No. 3 (Section I.F, revisions adopted July 15, 1993, Subsection I.G for modifications) the Division considers that a significant increase in emissions is the potential to emit above the PSD significance levels (15 tons/yr of PM_{10} and 25 tons/yr of PM). The requested increase in emissions is as follows:

Source	Controlled Emissions (tons/yr)		Uncontrolled Emissions (tons/yr)		Processing Rate (tons/yr)
	PM	PM_{10}	PM	PM_{10}	
Prior to Modification					
Coal Handling[1]	9	4	23.44	8.31	1,603,080
Ash Silo	0.97	0.97	38.34	38.34	62,841
After Modification					
Coal Handling[1]	10.44	4.62	27.15	9.63	1,857,120
Ash Silo	1.13	1.13	44.41	44.41	72,800
Change					
Coal Handling[1]	1.44	0.62	3.71	1.32	254,040
Ash Silo	0.16	0.16	6.07	6.07	9,959
Total Change	1.60	0.78	9.78	7.39	

[1]note that the uncontrolled and controlled (i.e. permitted) coal conveying emissions are based on a wind speed of 8.6 mph and a low moisture content of the coal. The higher wind speed does not take into account the fact that the conveyors are covered.

Since the increase in emissions is below the PSD significance levels, the modification may be processed as a minor modification. Note that the change in requested throughput and emissions are not based on physical change to the related equipment but to address the true maximum coal consumption rate of the Unit 2 boiler.

III. Modeling

Requested PM_{10} emissions from the modification are less than 1 ton/yr, which is much less than the modeling threshold of 15 tons/yr in the Division's modeling guidance, therefore, no modeling will be required.

IV. Discussion of Modifications Made

Source Requested Modifications

The Division addressed the source=s requested modifications as follows:

Revise Description of Boilers 1 and 2

In their October 6, 2004 request to modify the coal processing and emission limits for the Unit 2 coal conveying system, the source indicated that the original Title V permit application (which is the basis for the permit limits for the Unit 2 coal handling system and ash silo), incorrectly identified the design rate of the Unit 2 boiler. The design rate of the Unit 2 boiler in the original Title V permit application appears to have been based on the qualities of the actual coal used, not the design specifications. The source

submitted the design documents for the Unit 2 boiler in the October 6, 2004 modification and the design documents for the Unit 1 boiler were submitted in a facsimiled received on October 7, 2004. The permit was revised to reflect the appropriate design rate of each unit (Unit 1 - 3,531 mmBtu/hr and Unit 2 – 3,482 mmBtu/hr) in the Table in Section I, Condition 6.1 and in the Tables in Appendices B and C.

Increase Unit 2 Coal Handling System Coal Processing and Emission Limits

The source requested an increase in the emission limits from 9 tons/yr PM to 10.44 tons/yr PM and from 4 tons/yr PM_{10} to 4.62 tons/yr of PM_{10}. They also requested that the coal processing limit be increased from 1,603,080 tons/yr to 1,857,120 tons/yr. The requested coal processing limit is based on the maximum hourly coal consumption rate of Unit 2 (212 tons/yr) and 8760 hrs/yr of operation. The increase in emissions and processing rate were increased as requested.

The minor mod to increase the emission and processing limits for the Unit 2 coal handling system was submitted to EPA for their 45-day review on October 8, 2004. During the review period, EPA raised a question as to whether de-bottlenecking was considered for the modification to the Unit 2 coal handling emission and processing limits. Based on the Division's analysis (see attached memo to the file, dated November 15, 2004) the Division has concluded that de-bottlenecking should not be considered, since the modifications to the Unit 2 coal conveying system are necessary to correct the emission and processing limits to reflect the true design rate of the Unit 2 boiler.

Increase Unit 2 Ash Silo Ash Processing and Emission Limits

The source requested an increase in the emission limits from 0.97 tons/yr of PM and PM_{10} to 1.13 tons/yr of PM and PM_{10}. They also requested that the ash processing limit be increased from 62,841 tons/yr to 72,800 tons/yr. The requested ash processing limit is based on the maximum hourly coal consumption rate of Unit 2 (212 tons/yr), 8760 hrs/yr of operation, a coal ash content of 4.9 % (by weight) and an 80/20 fly ash/bottom ash split. The increase in emissions and processing rate were increased as requested.

Other Modifications

In addition to the requested modifications made by the source, the Division used this opportunity to include changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this modification.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments on other permits, to the Comanche Station Operating Permit with the source's requested modifications. These changes are as follows:

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- Added language specifying that the semi-annual reports and compliance certifications are due in the Division's office and that postmarks cannot be used for purposes of determining the timely receipt of such reports/certifications.

- Changed the Responsible Official

General

- Revised Reg 3 citations throughout the permit, as necessary, based on the recent revisions to Reg 3.

Section I – General Activities and Summary

- In Condition 1.4, General Condition 3.g (Common Provisions, Affirmative Defense) was added as a State-only requirement.

- Minor language changes were made to Condition 3.1 (PSD). Corrected the Operating Permit number referenced in Condition 3.2.

- Added a "new" section 5 for compliance assurance monitoring (CAM) requirements. Note that no emission units are subject to CAM at this time.

Section II.9 – Opacity Requirements and Periodic Monitoring

- Removed the "Note" from Condition 9.1.

Section II.10 – Lead Periodic Monitoring

- Revised the language in Condition 10.2 (calculating lead emissions for APEN reporting) to language included in recent PSCo revised permits.

Section II.11 – Coal Sampling Requirements

- Removed the requirement to sample coal for lead, since the lead emission calculations no longer use the lead content of the coal.

Section III – Acid Rain Permit

- Changed the Designated Representative.

- Removed the requirement to submit a copy of the annual compliance certification to the Division. The U.S. EPA requires the annual compliance certification to be submitted electronically now, so no hard copy is available for submittal to the Division.

Section IV – Permit Shield

- Corrected the citation. The reference to Part A, Section I.B.43 was changed to Part C, Section I.A.4 (the Part A citation in the current permit was incorrect but the change reflects recent Reg 3 revisions) and the reference to Part C, Section

XIII was changed to Part C, Section XIII.B.

Section V – General Conditions

- General Condition No. 3 was revised to reflect that 3.g (affirmative defense) is state-only until approved by EPA.

Colorado Department of Public Health and Environment

Air Pollution Control Division
Inter-Office Memorandum

TO: **FILE**

FROM: Jackie Joyce

DATE: November 15, 2004

RE: Public Service Company – Comanche Station, FID # 1010003, OP # 96OPPB133

SUBJECT: De-Bottlenecking Issues Raised Regarding October 6, 2004 Request for a Minor Modification to the Title V Operating Permit

PSCo requested a minor modification to their Title V operating permit on October 6, 2004 to increase the permitted coal processing limit for the Unit 2 coal handling system. A question was raised by EPA in regards to this requested modification as to whether de-bottlenecking should be considered, i.e. the coal conveying system by virtue of its coal processing limit was a bottleneck for the Unit 2 boiler. Under a de-bottlenecking scenario, emissions from the unit that is de-bottlenecked (in this case the Unit 2 boiler) are considered in determining whether PSD review requirements apply (i.e. if there is a net significant emissions increase), although BACT requirements would apply only to the modified emission unit.

The Division did not initially consider de-bottlenecking with this modification but when the de-bottlenecking issue arose, the Division reviewed the situation and considers that the modification does not represent a de-bottlenecking situation. Our analysis is as follows:

Delayed Construction Permit Issuance

The application for a minor modification to the Unit 2 coal handling system requested an increase in the coal processing limit. The requested increase is not due to any physical change to the coal conveying equipment but because the source realized that the coal handling system was not permitted at the maximum coal consumption rate for the boiler and that current operation of the coal handling system is reaching the permitted coal processing limits. Under the definition of a major modification, an increase in the production rate is not considered a physical change or change in the method of operation unless previously limited by a federally enforceable permit condition that was established after January 6, 1975.

The Unit 2 coal handling system (from reclaim to boiler) commenced construction after February 1, 1972 and therefore should have been issued a construction permit. The Division did issue a construction permit for the Unit 2 boiler (initial approval permit issued April 4, 1973). The construction permit for the Unit 2 boiler did not include any fuel use limitations. It is not clear from the files why the Division did not issue a construction permit for the Unit 2 coal handling system, ash silo or cooling towers. It may be that the Division presumed emissions from these units were minimal and did not require permitting. At the time the Unit 2 boiler was permitted, the Division did not necessarily include annual processing limitations or annual emission limits

in permits like we do now.

When the Division began receiving Title V permit applications in 1995, we received many APENS and construction permit applications for equipment that had not previously been permitted but should have been. Such was the case for the Unit 2 coal handling system, cooling towers and ash silo. A separate construction permit was issued for the cooling towers but the Unit 2 ash silo and coal handling system were permitted directly in the Title V permit. Because all of the emission units associated with Unit 2 were permitted after 1995, instead of prior to construction in 1973 as they should have been, the Division included permit conditions for annual fuel consumption and annual emissions as is our current practice. If the Division had issued construction permits for the Unit 2 coal handling system, ash silo and cooling towers, prior to when construction commenced, then most likely no processing limit would have been included in the permit. Even if the Division had issued the permits prior to construction with an annual processing limitation, the limitation would have been in place prior to January 6, 1975 and an increase in production now would not be considered a physical change or change in the method of operation.

Errors in Setting Permit Limitations

As mentioned previously, the Division did not permit the Unit 2 support equipment when the Unit 2 boiler was permitted in 1973, although we should have been aware there was support equipment for the boiler. In 1993, the source submitted APENS for equipment at the facility, including coal handling and ash handling and the Division issued exemption letters (permit and APEN exempt) for some of that equipment (engines driving an emergency generator and fire water pump, gasoline dispensing and surface coating operations), but no action was taken for the coal handling or ash handling APENS. When the Title V permit application was submitted, the source submitted APENS for coal handling, ash handling, haul roads and cooling towers. The Division issued an exemption letter (APEN and permit) for the haul roads and a construction permit for the cooling towers (issued 6/11/98) but no action was taken for the Unit 2 coal handling or ash silo. Most likely, since coal and ash handling for the facility were included on one APEN, each, and since the ash disposal pit was already permitted the Division did not realize that permits were required for some of the equipment. At any rate, during processing of the Title V permit application, the Division incorporated the appropriate applicable requirements for the Unit 2 ash silo and coal handling system. In an effort to keep the permitting process moving the Division informally addressed the permitting of the Unit 2 ash silo and coal handling system.

The source normally reports all coal and ash handling emissions on one APEN, each. For the Unit 2 coal handling system and ash silo, as indicated in the Title V permit, the Division based emissions on the maximum annual coal consumption rate indicated in the Title V permit application (for the coal handling system) and information in a letter received on August 4, 1998 memo from the source (for the ash silo). The Division did not require that an additional APEN be submitted as is required for obtaining a construction permit. The intent was to permit the Unit 2 coal handling system based on the boiler's maximum annual coal usage rate (maximum hourly coal consumption rate x 8760 hrs/hr), rather than the design rate of the Unit 2 coal handling system. The Unit 2 boiler is physically the limiting factor for the coal handling system.

According to the information in the October 6, 2004 modification request, the boiler's maximum hourly heat input rate and coal consumption rate are 3,482 mmBtu/hr and 212 tons/hr, respectively, while the coal handling system's conveyor design rate is 1,200 tons/hr (based on documents received during processing of the original Title V permit). Unfortunately, for some reason, the Title V permit application did not reflect the true maximum coal consumption rate for the boiler. The Title V permit application indicated that the boiler's maximum hourly heat input rate and coal consumption rate were 3,122 mmBtu/hr and 183 tons/yr, respectively, based on a coal heating value of 8,530 Btu/lb.

A review of the Division's files indicates that when the Division initially permitted the boiler, the source provided design specifications to us. Those specifications (dated February 17, 1972) indicate that the boiler was rated at 3,508 mmBtu/hr, with a fuel consumption rate of 425,000 lbs/hr (based on the expected coal heating value of 8250 Btu/lb, the lower end of the scale for sub-bituminous coal). In addition, APENS submitted for the 1977 EIS update (received on December 17, 1979), indicated that the design rate of both boilers was 3,500 mmBtu/hr. APEN submittals prior to 1992 – 1994 are scarce, and none were found except for the 1977 EIS update. APENS submitted for 1993 and 1994, received on April 29, 1994 and July 31, 1995, respectively, did not indicate the design rate for the boilers. However, on an APEN signed on July 31, 1995, the design rate for the Unit 2 boiler was shown as 3,122 mmBtu/hr; the rate indicated in the Title V permit application. Although the Title V permit application and APENS submitted after July 31, 1995 were incorrect, the Division did have the appropriate information to determine the correct design rate of the Unit 2 boiler.

The Division views the requested modification to the Unit 2 coal handling system as a correction to the permitting action the Division took with the Title V permit. Admittedly both the source and the Division were remiss in determining the maximum fuel usage for the Unit 2 boiler, but the intent was to permit the Unit 2 coal handling system at the maximum annual coal consumption rate of the boiler.

Conclusions

Based on the information discussed above, the Division does not believe that de-bottlenecking should be addressed for the request to increase the coal processing rate at the Unit 2 coal handling system. The Division and the source have always intended to permit the coal handling system at the maximum capacity of the boiler, since from a physical standpoint the boiler serves as the limiting factor (we don't really view it as a "bottleneck" since that term implies a midstream issue) for the coal handling system and there is no practical reason to permit it at a higher level. The processing rate in the permit was incorrect and we view this current modification as a change to correct our previous mistakes in permitting the Unit 2 coal handling system.